In the Claims:

1. (Currently Amended) A method of detecting combustion inefficiency in an engine having multiple cylinders, comprising:

detecting a peak in an oxygen level in an exhaust stream; [[and]]

linking the peak in the oxygen level to a particular cylinder in the engine; and

reporting the peak in the oxygen level to an operator in a human readable format.

2. (Currently Amended) The method of claim 1 wherein detecting [[a]] the peak in [[an]] the oxygen level comprises detecting [[a]] the peak in [[an]] the oxygen level with a lambda sensor.

3. (Currently Amended) The method of claim 2 wherein detecting [[a]] the peak in [[an]] the oxygen level with [[a]] the lambda sensor comprises detecting [[a]] the peak in [[an]] the oxygen level with a lambda sensor positioned in an exhaust manifold.

4. (Currently Amended) The method of claim 2 wherein detecting [[a]] the peak in [[an]] the oxygen level with [[a]] the lambda sensor comprises detecting [[a]] the peak in [[an]] the oxygen level with a lambda sensor positioned proximate a catalytic converter.

5. (Original) The method of claim 2 further comprising associating each of the multiple cylinders with a unique oxygen sensor.

6. (Currently Amended) The method of claim 5 wherein linking the peak in the oxygen level to a particular cylinder comprises discriminating between the unique oxygen sensors as to which oxygen sensor detected [[a]] the peak in the oxygen level.

7. (Currently Amended) The method of claim 1 wherein detecting [[a]] the peak in [[an]] the oxygen level comprises directly detecting [[an]] the oxygen level.

8. (Currently Amended) The method of claim 1 wherein detecting [[a]] the peak in [[an]] the oxygen level comprises inferentially detecting [[an]] the oxygen level.

9. (Original) The method of claim 1 further comprising generating a timing reference associated with the engine.

10. (Original) The method of claim 9 further comprising linking the timing reference with the peak.

11. (Currently Amended) The method of claim 10 wherein linking the peak in the oxygen level to [[a]] the particular cylinder in the engine comprises comparing the linked timing reference and peak to a fingerprint for the engine.

12. (Original) The method of claim 11 wherein the fingerprint is one of multiple fingerprints assembled in a database.

13. (Currently Amended) A computer readable medium having software stored thereon, said software adapted to detect combustion inefficiency in an engine having multiple cylinders by:

comparing a sensed oxygen level coupled with a timing reference to a database of fingerprints;

determining a peak in the sensed oxygen level; and

reporting the peak in the sensed oxygen level to an operator in a human readable format.

14. (Original) The computer readable medium of claim 13 wherein said software is adapted to receive inputs from probes connected to a lambda sensor and a timing reference generator.

15. (Currently Amended) The computer readable medium of claim 13 wherein said software is adapted to link ~~output an indication that the combustion inefficiency is linked to~~ a particular cylinder of the engine to the peak.

16. (Original) The computer readable medium of claim 13 wherein said software is adapted to generate a timing reference for engines selected from the group consisting of those using a distributorless ignition system (DIS) and those using a distributor system through the calculation of an offset.

17. (Original) The computer readable medium of claim 13 wherein said software is adapted to receive the sensed oxygen level from a probe connected to a sensor that senses oxygen levels indirectly.

18. (Currently Amended) A vehicle adapted to detect combustion inefficiencies, comprising:

an engine comprising multiple cylinders, each cylinder having an exhaust port associated therewith;

a plurality of oxygen sensors, each of said plurality of oxygen sensors associated with a different one of the exhaust ports; and

an onboard computer adapted to receive inputs from said plurality of oxygen sensors and discriminate thereamongst, said onboard computer adapted to determine if a given cylinder has a combustion inefficiency based on peaks in oxygen sensed by said plurality of oxygen sensors, said onboard computer further adapted to report the peak in the oxygen level to an operator in a human readable format such that the operator is informed of which of the multiple cylinders has the combustion inefficiency.

19. (Currently Amended) The vehicle of claim 18 wherein said plurality of oxygen sensors detect oxygen levels inferentially.

20. (Currently Amended) The vehicle of claim 18 wherein said plurality of oxygen sensors detect oxygen levels directly.

21. (Previously Presented) The method of claim 1 wherein linking the peak in the oxygen level to the particular cylinder in the engine comprises inferring that the particular cylinder had an incomplete combustion.

22. (Previously Presented) The method of claim 1 wherein linking the peak in the oxygen level to the particular cylinder in the engine comprises determining which cylinder released exhaust gases containing the peak in the oxygen level.

23. (Previously Presented) The method of claim 22 wherein determining which cylinder released the exhaust gases containing the peak in the oxygen level comprises inferentially determining which cylinder released the exhaust gases containing the peak in the oxygen level.

24. (Previously Presented) The method of claim 22 further comprising using a known firing order of the cylinders to assist in determining which cylinder released the exhaust gases containing the peak in the oxygen level.

25. (Previously Presented) The computer readable medium of claim 13 wherein the database of fingerprints comprises a database of fingerprints relating to empirically derived oxygen levels.

26. (Previously Presented) The computer readable medium of claim 25 wherein the empirically derived oxygen levels are derived from introducing a known combustion inefficiency into a normally operating engine and wherein said fingerprints comprise data related to oxygen levels detected in an exhaust path associated with the normally operating engine.